

REMARKS

The following claims are pending in the application: 1 - 28

The following claims have been amended: 1, 11

The following claims have been deleted:

The following claims have been added: 29

As a result of the foregoing Amendment, the following claims remain pending in the application: 1 - 29.

The Rejection Under 35 U.S.C. §102(b)

The Examiner has rejected claims 1 - 5, 8 - 25, 27 and 28 under 35 U.S.C. §102(b) as being anticipated by De De Castro et al. (U.S. Patent No. 5,841,021).

With respect to claim 1, Applicants respectfully submit that De Castro et al. fails to anticipate the invention as presently claimed because De Castro et al. does not teach a chemi-resistor sensor as is presented in claim 1. Rather, De Castro et al. presents a mixed potential sensor that relies upon the presence of oxygen to operate. The De Castro et al. reference teaches and only teaches a mixed potential sensor wherein the sensing electrode is constructed from a material capable of sensing a contaminant gas, such as hydrogen gas. See Column 7, lines 50 - 60 and column 9, lines 55 - 59. That is, the sensor detects a gas by measuring the voltage difference between the reference electrode and the gas-sensing electrode. Further, De Castro et al. teaches and only teaches that sensors according to his invention (that is that employ the specific materials and configuration disclosed therein) are operable in oxygen. See Column 11 and on, wherein the testing of the sensors is described. Indeed, the entire content and context of

the De Castro et al. reference is the detection of toxic or explosion gases in habitable environments (that is, places with oxygen).

In the present invention, the sensor is capable of selectively determining the carbon monoxide content in a reducing environment due to the material used as the sensing material. Comparatively, De Castro et al. functions in a non-reducing environment (that is, one that contains oxygen). Thus, the sensing material of the present invention is different than the sensing electrode of the De Castro et al. reference. Further, because De Castro et al. is a mixed potential device it is imperative that the substrate that separates the sensing and reference electrodes conduct electricity. However, in the present invention, the substrate functions only to provide structure and support to the device and does not interact in the sensing function. Further, the electrodes in the present invention are not responsive to the presence of a gas, unlike the sensing electrode of De Castro et al. (see De Castro et al., column 9, lines 45 - 59).

As to claim 2, Applicants respectfully submit that De Castro et al. fails to teach a non-conductive substrate such as alumina.

As to claims 3 and 4, De Castro et al. fails to teach interdigitized electrodes as this orientation of the electrodes to one another is not material for a mixed potential sensor as taught therein.

As to claim 5, De Castro et al. fails to teach a metal halide sensing material.

As to claims 8 and 9, De Castro et al. fails to teach the use of a heater.

As to claim 10, De Castro et al. fails to teach a sensor (as is presented in claim 1) that measures concentration as a result of resistance, impedance, capacitance, conductance, inductance, voltage or current.

As to claims 11 and 15, Applicants respectfully submit that as Castor et al. fails to teach the use of a device containing a sensing material that senses carbon monoxide, in a reducing environment as is presently claimed in claims 11 and 15, the De Castro et al. reference cannot fairly be said to anticipate the present invention. Further, Applicants respectfully point to Column 11, line 46 and on wherein the series of tests performed on the De Castro et al. sensor are all conducted in the presence of air (which contains oxygen which is not reducing in nature).

Applicants respectfully submit that De Castro et al. is silent as to the various elements found in dependent claims 12 - 14, 16 - 25, 27 and 28.

Applicants respectfully submit that due to the differences noted above, the De Castro et al. reference cannot be said to anticipate the present invention as described in independent claims 1, 11, or 15. Accordingly, Applicants respectfully submit that the Examiner's outstanding rejection may be properly withdrawn.

The Rejection Under 35 U.S.C. §103(a)

The Examiner has rejected claims 6, 7, and 26 under 35 U.S.C. §103(a) as being unpatentable over De Castro et al. in view of Tamaki et al. (U.S. Patent No. 6,311,545). The Examiner takes the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the gas sensor of Tamaki et al. for the electrochemical gas sensor of De Castro et al. since both gas sensors are designed to detect a plurality of different gases that include hydrogen and hydrogen sulfide gases to increase the detection functions of electrochemical gas sensors.

Applicants respectfully submit that the combination of De Castro et al. in light of Tamaki et al. fails to render the present invention an obvious variation of the prior art as the combination fails to teach or suggest all of the claim limitations. Applicants have differentiated the De Castro et al. reference from the present invention in the proceeding section and respectfully submit that the Tamaki et al. reference fails to cure the deficiencies of the De Castro et al. reference. Further, Applicants respectfully submit that as Tamaki et al. teaches and only teaches that the use of a cuprous chloride film diminishes the sensitivity of the device (see, column 8, table 2 wherein reference example 2 that was coated with cuprous chloride was unable to detect low concentrations of gas), and that one would not be motivated to combine the reference with De Castro et al. and further that one would not reasonably expect to succeed in so combining the references. Therefore, Applicants respectfully submit that the Examiner's outstanding rejection may be properly withdrawn.

CONCLUSION

In view of the foregoing amendment and accompanying remarks, the Applicants respectfully submit that the present application is properly in condition for allowance and may be passed to issuance upon payment of the appropriate fees.

Telephone inquiry to the undersigned in order to clarify or otherwise expedite prosecution of the subject application is respectfully encouraged.

Respectfully submitted,

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